New Records and Species of Biting Insects from the Ethiopian Region — III.

by

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SIMULIIDÆ.

Prosimulium damarensis sp. nov. (Fig. 1.)

Described from spirit material.

Female.

A large species with a distinctive thoracic pattern. *Wing length.* Approximately 4 mm. *Head.* Frons very wide equalling more than half the width of the ye or one-fifth the total width of the head. *Palp.* Fifth segment very short, not equalling the combined lengths of 4 and 3, the proportionate lengths of segments 3, 4 and 5 being 3 : 2 : 4. Mandibles of unusual shape, thin and weak, teeth variable, in some specimens teeth replaced by irregular serrations on the outside and a terminal tooth which may be double, in others about 9 well-formed teeth on the outside and 5 - 6 weak serrations on inside. Maxilla with 4 - 5 large teeth on one side and none on the other. Pharyngeal bar unarmed. *Thorax.* Scutum with a definite dark pattern as illustrated; pleura without a scale patch or with one or two hairs on the membrane. *Wings.* Since the only adults available had to be dissected from pupæ the interpretation of venation in folded wings presented some difficulty even in stained specimens. Thanks, however, to Edwards' (1931) discoveries it has been possible to interpret the venation towards the wing tip by following the distribution of macrotrichia on the membrane. From this it seems that, although a clearly marked fork in the radial sector cannot be seen, there are, towards its apex, lines of macrotrichia on both dorsal and ventral surfaces and these lines tend to separate and reach the costa at slightly different points. The lines on the ventral surface represent the concave vein R_{2+3}, while those on the dorsal surface delineate the convex vein R_{4+5}. Rs. is therefore forked. Anterior vein of the wing with hairs only and no spiniform bristles. A basal cell apparently present. Sc. with numerous hairs from base to apex. *Legs.* Apparently pale throughout, except for a small dark patch at the apex of the hind tibiæ; calcipala and pedisulcus absent; claws of all legs with a small basal tooth. *Terminalia.* Eighth sternite with a shallow depression; gonapophyses short and rounded; spermatheca large, circular in some specimens, slightly broader than long in others, with a few hairs internally and external surface reticulated.

Male.

Wing length. Slightly less than in female. *Head.* Holoptic, lower facets smaller than upper as usual, antenna and palp as in female. *Thorax.* Scutum without any obvious pattern. *Wings.* As in female, but basal cell not distinct. *Legs.* Pale with the tibia darkened at extreme apex and base and tarsi generally a shade darker than in female; hind basitarsus slightly swollen. *Terminalia.* Style slightly longer than coxite, very broad basally with 3 - 4 terminal spines; ventral plate broad with prominent basal arms; parameral hooks and spines absent; ædœagus broad, short and gutter-shaped in cross-section.

Pupa.

Respiratory organ with 7 more or less subequal simple filaments. *Head.* With short, simple trichomes; completely devoid of tubercles. *Respiratory organ.* Shorter than the pupa itself with 7 simple, subequal branches which arise, more or less, from a common base; there are on the outside 2 very short main stems which bifurcate; between them is a single filament arising directly from the main base, internally a short main stem bifurcates; though spread out basally the tips of the filaments tend to meet and to mix with those of the organ on the opposite side, so forming a network over the pupal head in which the head of the larval pelt is often caught up. *Abdomen.* Dorsally segments 3 - 4 each with four short thick, simple, forwardly directed spines on each side apically, segments 5 - 8 with complete combs of small backwardly directed closely set spines basally; segment 9 with an incomplete basal comb and two exceptionally large, forwardly directed terminal spines. Ventrally segment 5 with a pair of simple, forwardly directed spines on each side; 6 and 7 as 5, but spines much larger; 9 with a number of stiff, twisted bristles below the large terminal spines.

Cocoon.

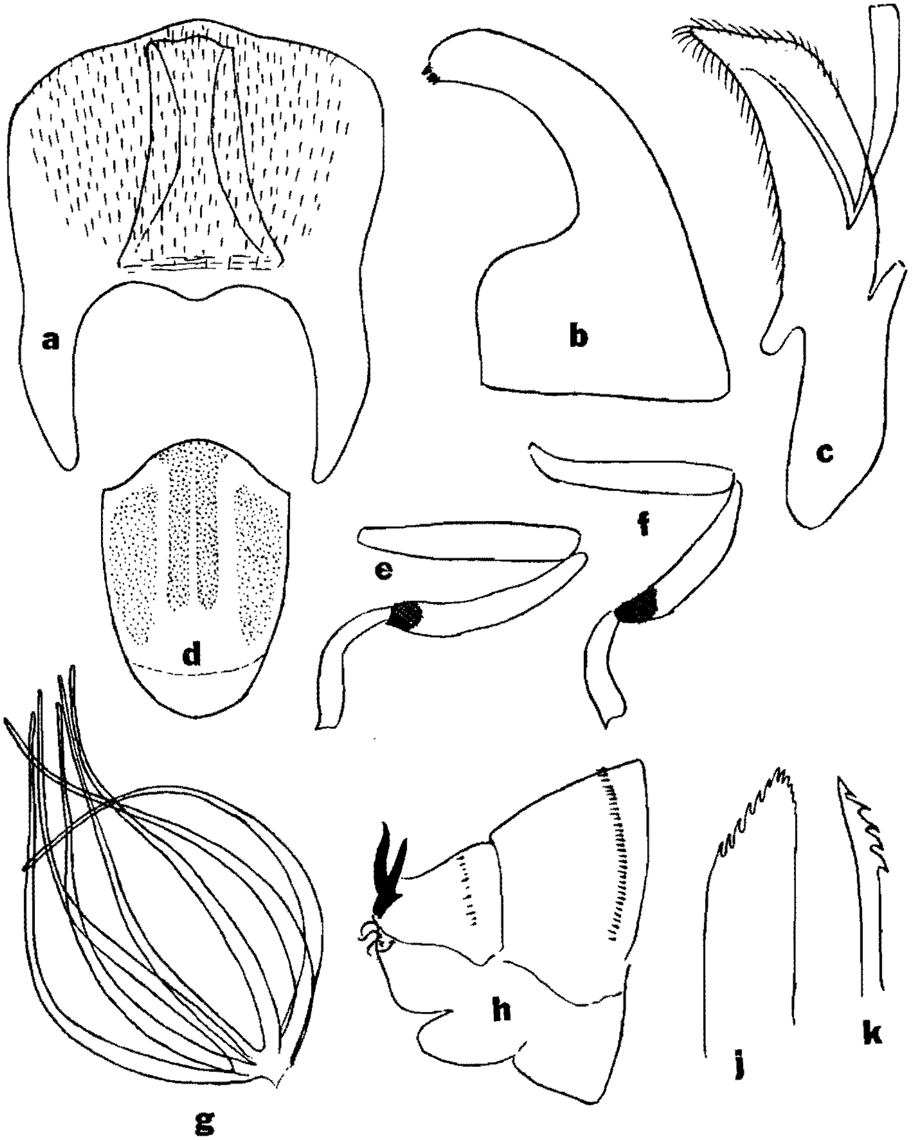
A simple pocket of no definite shape, loosely woven, transparent and often enclosing the whole pupa, including the respiratory organs.

Material examined.

Holotype ♂ dissected from a mature pupa and portions mounted on slides. Numerous other preserved specimens. In the collection of the South African Institute for Medical Research, Johannesburg. All from Brandberg, S.W. Africa, 1950 (coll. B. de M.).

Habits.

The adults were not encountered and nothing is known about them. The pupæ were not found singly, but in large patches in a more or less common network of silk on a rock face under fast-rushing water. The larvæ, which are black in colour, were seen in large numbers surrounding the whitish patches of pupæ. From an examination of such pupal patches it appeared that when larvæ are mature they migrate to the central patch of pupæ and then spin their cocoons amongst the others. In such a patch of pupæ the



Prosimulium damarensis sp. nov.

Fig. 1. — *a* ventral plate and median sclerite; *b* style, side view; *c* ventral plate and median sclerite, in side view; *d* female mesonotum; *e* female hind leg; *f* male hind leg; *g* pupal respiratory organ; *h* apex of pupal abdomen; *j* female mandible; *k* female maxilla.

only discernible feature is the fact that all pupal heads point downstream, apart from this it represents a tangled mass of interwoven silk. In this mass are to be found mature larvæ spinning cocoons, young and mature pupæ and empty pelts, but no larvæ which are still feeding. It appears, then, that this species has a common pupating ground to which all mature larvæ migrate. Dyar and Shannon (1927) describe somewhat similar habits in *magnum* from N. America, and Smart (1936) in *hirtipes.*

Affinities.

In the absence of reared adults the condition of the radial-sector cannot be determined with absolute certainty. From the preserved material it appears to be forked, and if this eventually proves to be correct then there can be little doubt that the species belongs to the genus *Prosimulium,* which is Holarctic in distribution. Other features which place it in this genus are: (1) anterior wing veins without any spiniform bristles, (2) calcipala and pedisulcus absent, (3) presence of large terminal spines on pupal abdomen, (4) cocoon of no definite shape and (5) common pupating ground. (Roubaud 1906, Edwards 1931, Smart 1945.)

We are indebted to Mr. Paul Freeman of the British Museum for helpful discussions.

SIPHONAPTERA.

Xenopsylla hirsuta subsp. **placidia** subsp. nov.

Belongs to a group of closely related species which have so far only been found in the extreme south-west corner of the Cape Province. The groups consist of *hirsuta* Ing., *sulcata* Ing., *lobengulæ* De M., and *davisi* De M. Of these *davisi* is immediately separable from the rest by the shape of the internal plate and ninth sternite of the male. The rest of the group differ from one another firstly in the shape of the paramere and secondly in the number of heavy bristles on the eighth sternite in the male. From *sulcata* through *lobengulæ* to *hirsuta* there is a gradual reduction of the number of these bristles, *sulcata* averaging 10 - 12 and *hirsuta* 5 - 7. There is also a gradual reduction in the depth of the dorsal groove of the male head. The new subspecies occupies the lowest place in this series, having only one heavy bristle on the eighth sternite and a relatively shallow dorsal head groove. The paramere is as in *hirsuta,* and for these reasons it is regarded as a subspecies of that species. Occurring with it in the same area were some *lobengulæ,* but no *hirsuta.* *X. lobengulæ* is known to occur from Clanwilliam in the north to the Cape Flats in the south and east as far as the ranges of mountains which run more or less parallel with 19° Long. At the southern limit of its distribution it breaks through the mountains mentioned and extends eastwards to near Mossel Bay. Neither *hirsuta* nor *sulcata,* however, have been found east of this mountain range. Although it may appear, therefore, that the new form is placed too close to *hirsuta* geographically to be regarded as a subspecies, in reality the two are separated by a range of mountains. It is possible that further collecting may yield *hirsuta hirsuta* in this area, in which case the status of the new form will have to be reconsidered.

The female appears to be inseparable from *hirsuta hirsuta*.

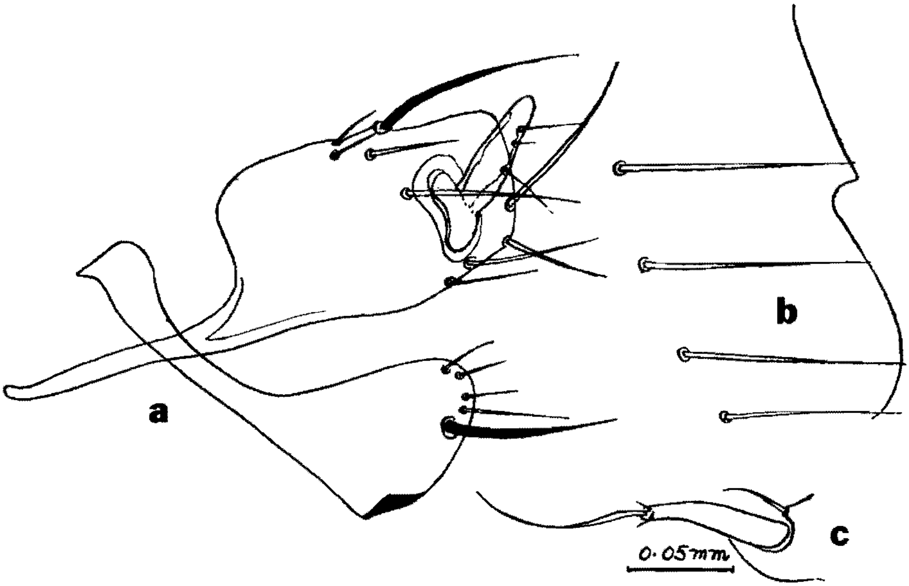
One ♂ holotype, four ♂♂ and two ♀♀ paratypes from a *Tatera* nest 3·6 miles from Stanford on the road to Gansbaai, C.P., 17.1.50 (coll. C. V. Muller). One ♂, one ♀ paratype in the British Museum, the rest in the South African Institute for Medical Research, Johannesburg.

Chiastopsylla nama sp. nov. (Fig. 2.)

Belongs to the *numæ* group of species in which the hind tibia has 7 - 8 dorsal notches bearing heavy bristles; on the other hand the male terminalia places it in the *pitchfordi* group, among whose members it resembles *godfreyi* Waterst. The head in both sexes is fracticipit and hence it differs from all other *Chiastopsylla* (a fracticipit head has been seen in a *godfreyi* ♂, but this is rare) and brings it close to *Hypsophthalmus*. A further character linking it with *Hypsophthalmus* is the relatively greater length of the female style.

Male.

Head. Fracticipit; with a distinct frontal notch situated just below the middle of the frons. Proboscis nearly as long as the fore-coxa. Two prominent genal spines. *Thorax.* Pronotum with a comb of 12 long teeth, of which the lowest is as long as the one above it. *Legs.* Hind tibia with



Chiastopsylla nama sp. nov.
Fig. 2. — *a*. clasper and ninth sternite of male; *b*. seventh sternite of female; *c*. female stylet.

eight dorsal notches bearing stout spines. None of the apical tarsal bristles reach beyond the apex of the succeeding segment. *Abdomen.* The average number of abdominal bristles and spines in two specimens, counting both sides together, is as follows:

		I	II	III	IV	V	VI	VII
Tergites	ante-median row . .	5	4	2	2	2	1	2
	post-median row . .	8	12	12	12	11	11	11
	Spines	3	2	2	2	2	—	—
Sternites		—	2	4	4	4	4	4

Modified segments. (Fig. 2a.) Somewhat similar to *godfreyi*, but the ninth sternite is not so much enlarged and only bears one stout bristle on its apical border. The movable process of the clasper is narrower and more truncate apically.

Female.

Head. Fracticipit and hence unlike *godfreyi* and all other *Chiastopsylla* except *quadrisetis* De M., in which a faint suture may sometimes be seen. *Legs.* As in the male. *Abdomen.* The average number of spines and bristles in seven specimens counting both sides together are:—

		I	II	III	IV	V	VI	VII
Tergites	ante-median row . .	7	5	4	4	3	2–3	3
	post-median row . .	8	12	12	12	11	11	10
	Spines	3	2	2	2	1	—	—
Sternites		—	2	6	6	5	6	9

The seventh sternite bears a notch along its posterior border, as shown in fig. 2b. The eighth sternite carries about five large bristles laterally on each side and from five to six along the apical border. The spermatheca is as generally seen in *Chiastopsylla*. The stylet (fig. 2c.) is longer than in other species of the genus.

One ♂, holotype, off *Graphiurus*, Keetmanshoop, S.W. Africa, 10.3.50. Paratypes: one ♀ taken with the holotype, one ♂, five ♀♀ off *Aethomys namaquensis*, Keetmanshoop, 10-11.3.50, two ♀♀ off *A. namaquensis*, four m.E. off Schakalskuppe 13.3.50 (coll. R. Rose-Innes and P. J. Geldenhuys). A pair of paratypes to be presented to the British Museum, the rest in the collection of the South African Institute for Medical Research, Johannesburg.

LITERATURE.

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